31. (Amended) A composition comprising the fusion protein of claim 26 and diluent, said composition being free of contamination by other clostridial proteins.

REMARKS

Reconsideration is requested. Claims 3-28 and 30-33 are pending. Claims 13-18 and 25 have been withdrawn from consideration. Claims 3, 4, 20, 22, 23, 24 and 27 have been canceled, without prejudice, to advance prosecution. Accordingly, upon entry of the above amendments, claims 5-19, 21, 25, 26 and 28-33 will be pending. Entry of the above amendments will, at a minimum, reduce the issues for any possible appeal, for the reasons described below. Entry of the above amendments therefore is requested.

The Section 112, first paragraph, rejection of claims 22-24 will be moot upon entry of the above amendments. Accordingly, entry of the above amendments will reduce the issues for any possible appeal by making the Section 112, first paragraph, rejection of claims 22-24 moot.

The Section 102 rejection of claims 3, 4, 7-10, 12, 19-24, 26-27, and 30-33 over Sesardic (WO 94/21684) as evidenced by Sigma Catalog 1992, pages 1585 and 1592-93, is obviated by the above amendments. Specifically, the claims have been amended, to advance prosecution, to be based on claims 5 and 6, for example, which have been found to be novel over Sesardic. Entry of the above and withdrawal of the Section 102 rejection of the recited claims over Sesardic is requested.

Similarly, the Section 102 rejection of claims 1-4, 7-12, 19-24, 26-27 and 30-33 over Simon (U.S. Patent No. 5,178,859) will be obviated upon entry of the above amendments. The applicants note the Examiner has rejected claims 1 and 2 however the same are no longer pending. Entry of the above and withdrawal of the Section 102 rejection are requested.

The objection to claim 8 is obviated by the above which deletes the objected-to phrase.

The Section 102 rejection of claims 1-4, 7-10, 12, 19-24, 26-27 and 30-33 over Thompson (FEMS Microbiol. Letters, 108:175-82, (1993)) is obviated by the above amendments which, as noted above, have been made to advance prosecution by canceling claims 3 and 4 and to recite the subject matter of claims 5 and 6, for example, which the Examiner has found novel over Thompson. Again, the Examiner has rejected claims 1 and 2 which were canceled in the Amendment of June 16, 2000. Withdrawal of the Section 102 rejection of the recited claims over Thompson is requested.

The Section 112, second paragraph, rejection of claims 3-12, 19-24, 26-28 and 30-33 is obviated by the above. The claims have been amended, to advance prosecution, for clarity and to obviate the Section 112, second paragraph, rejection with regard to the Examiner's concerns relating to functional recitations of the unamended claims. Withdrawal of the Section 112, second paragraph, rejection of claims 3-12, 19-24, 26-28 and 30-33 is requested.

The Section 112, second paragraph, rejection of claims 26-28 and 30-31 is obviated by the above. The claims have been amended, to advance prosecution, by

canceling claim 27 which contains the language objected to by the Examiner. Withdrawal of the Section 112, second paragraph, rejection of claims 26-28 and 30-31 is requested.

In view of the above, the claims are submitted to be in condition for allowance and a Notice to that effect is requested.

Respectfully submitted,

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MARKED UP CLAIMS

5. (Four Times Amended) An isolated polypeptide [according to Claim 3 wherein said fragment is] comprising a sequence of amino acids selected from the group consisting of:

(a) amino acids 848-1278 of a type F botulinum toxin (SEQ ID NO: 1)

(b) amino acids 848-991 of a type F botulinum toxin (SEQ ID NO: 2)

(c) amino acids 992-1135 of a type F botulinum toxin (SEQ ID NO: 3), and;

(d) amino acids 1136-1278 of a type F botulinum toxin (SEQ ID NO: 4)

6. (Four Times Amended) An isolated polypeptide [according to Claim 3 wherein said derivative comprises] comprising a dimer of the [fragment] sequences selected from the group consisting of:

(a) amino acids 848-1278 of a type F botulinum toxin (SEQ ID NO: 1)

(b) amino acids 848-991 of a type F botulinum toxin (SEQ ID NO: 2)

(c) amino acids 992-1135 of a type F botulinum toxin (SEQ ID NO: 3), and

(d) amino acids 1136-1278 of a type F botulinum toxin (SEQ ID NO: 4)

7. (Four Times Amended) A polypeptide composition comprising:

(1) an isolated polypeptide according to claim [3] 5; and

(2) an isolated polypeptide that facilitates or enhances purification of the composition.

8. (Three Times Amended) A polypeptide composition comprising an isolated fusion protein of [(1)] a sequence of amino acids [corresponding to a fragment or a derivative of a heavy chain of a type F botulinum neurotoxin, which polypeptide is (a) free of botulinum toxin activity, (b) is free of toxoid, and (c) elicits, in a mammal, an immunological response that it protective against type F botulinum toxin, and (2)] selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4 fused to a polypeptide that facilitates or enhances purification of the composition.

12. (Three Times Amended) A vaccine comprising a pharmaceutically acceptable carrier and a polypeptide according to claim [3] 5.

19. (Three Times Amended) A pharmaceutical composition comprising:

(a) a fusion protein, said protein being a fusion of (i) a polypeptide as described in claim [3] 5, and (ii) a polypeptide that binds to a chromatography column; and

(b) a pharmaceutically acceptable carrier.

21. (Three Times Amended) A pharmaceutical composition according to Claim [20] 19 wherein the fusion protein comprises a polypeptide that binds to an affinity chromatography column.

26. (Amended) An isolated fusion protein comprising (1) a sequence of amino acids [corresponding to a fragment or a derivative of a heavy chain of a type F botulinum neurotoxin, which is (a) free of botulinum toxin activity, (b) is free of toxoid, and (c) elicits, in a mammal, an immunological response that is protective against type F botulinum toxin] selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, and SEQ ID NO:4, and (2) a polypeptide that facilitates or enhances purification of the fusion protein.

28. (Twice Amended) The fusion protein of claim [27] 26 wherein said *C. botulinum* amino acid sequence consists of SEQ ID NO: 1 [the contiguous amino acid sequence of amino acids 848 to 1278 of said *C. botulinum* neurotoxin (SEQ ID NO:1)].

30. (Twice Amended) The fusion protein of claim [27] 26 wherein said [*C. botulinum* neurotoxin] amino acid sequence comprises at least one amino acid sequence selected from SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4 [contiguous amino acid sequence of amino acids 848-991 of said *C. botulinum* neurotoxin (SEQ ID NO:2), the contiguous amino acid sequence of amino acids 992-1135 of said *C. botulinum* neurotoxin (SEQ ID NO:3), or the contiguous amino acid sequence of amino acids 1136-1278 of said *C. botulinum* neurotoxin (SEQ ID NO:4)].

31. (Amended) A composition comprising the fusion protein of claim [27] 26 and [a] diluent, said composition being free of contamination by other clostridial proteins.